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## NEW INTERACTION PARADIGM OF ECOLOGICAL, SOCIAL AND ECONOMIC STRUCTURES OF HUMAN ACTIVITY<sup>1</sup>

*Realities of the XXI century demand searching and grounding measures on changing economic, political, and the main thing, ideological institutions that determine trends of evolution and managing vital human activity at national and over-national levels. Using synergetic approach, the authors made an attempt to synthesize conclusions and main theses of neo-institutionalism theory, onto-psychology, as well as results of biological evolution for determining the way to overcome global ecological crisis at nano-level and to form a model of the mankind's optimal evolution on the base of principle "priorities through parities", using DNA-symbol as a code of survival, through co-evolution of economy and ecology.*

*The main problem, existing even in economically developed countries, is the realization of the fact that the paradigm of the stationary economy is the only condition for the mankind's survival. To solve this problem serious transformation of ideological institutions is necessary, at the expense of comprehensive and based on onto-psychological methods program of ecological literacy, that should harmonically blend with the presented by the authors triads of state strategic management and achieving the goal of development. It is the transformation of the national matrix, content and direction of which are set in order to ensure a balance of interests of all participants in ecological and economic development, will lay the necessary rules, both formal and informal, in the style of human behavior, social groups, the national economy.*

*Realization of the program ecological literacy within the national policy on ecological development of the regions is one of the most important conditions for a natural, not imposed from the outside, prepare to use the paradigm of a sustainable economy as the basis of economic, political and ideological institutions of modern society, which is primarily the formation of a new paradigm of human device — devices nano-level decision-making, consumer behavior.*

**Keywords:** paradigm of stationary economy; transformation of institutional matrix; priorities through parities; ecological literacy

### 1. Introduction

The situation that took place both in Russia and in the world on the whole in 2014 showed, that to provide natural security and economic growth it is necessary to take efficient measures. Without that condition, meta-purpose — the increase in the quality of human life — becomes unattainable. Analysis of internal reasons, which negatively influenced the state of Russian economy achieved by 2014, showed the following. Internal producers' non-competitiveness in most industries of national economy, rupture of economic ties with the republics of the former USSR, labor deintellectualization (when specialists of high qualification in most production spheres aren't in demand either in production or science year after year, and the present labor and payment conditions for such specialists remain at a low level) that reflects in production primitivization (situation, when the

priority is given to fuel and energy complex, products of which are in demand both on home and foreign markets). The main negative result is degradation of social sphere on the whole, manifesting itself in mass poverty and erosion of the middle class, hence — deviation from social and economic standards of the developed countries and drawing near to indices of the "third world" countries; and this is along with the fact that intellectual and natural resources potential of our country has got high values, leaving behind many states. But not being in demand or inefficient management brings to naught all the advantages of that potential in the world arena.

Obviously, all the above-said is accumulated into the main problem of transition to innovation way of development — the problem of human resources quality, including unreadiness of a man for participation in innovation activity.

One more reason for the dependence of Russian innovation development on geopolitical situation cultivation of national and economic separatism ideas can be considered, leading to the rupture of

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any relations (including those with the states of the former USSR). In its turn, it leads to emerging a threat to national security, including defense and food threats, that requires increase in expenditure on modernization, military industrial complex innovation, providing domestic farm producers with more efficient support within the frames of the present understandings with the World Trade Organization and Customs Union [1, pp. 45-46].

The following concepts can be considered key terms of the article:

- “growth” and “development” in their comparison and interconnection [2, pp. 201-202], when direct comparison isn’t enough and grounding of the development’s triad is necessary, when growth is regarded as one of the development’s components, along with change and improvement;

- Russian “X-Y-institutional matrix”, showing the directions of necessary transforming political, economic and ideological components of such a matrix, within the framework of neo-institutional theory [3, p. 101];

- “pyramid of region’s development factors”, that is constructed in the image of demands pyramid according to A. Maslow and makes it possible to evaluate each level of factors, from the point of different classifications in the context of their possibilities to manage a territory [4; 5, p. 129];

- “archetypes” by K.G. Ung as the base of intuitive behavior, laid in ontopathology by A. Menegetty [6, pp. 156, 366, 488; 7, pp. 180, 214];

- “metapathology” as counterbalance to behavior standards and rules, blending with a certain model of society development, the availability of which leads to mistakes, hitches and crises in the system’s work [8, p. 14];

- “management triads”, touching upon vertical hierarchy of management “subjects-objects”, resource component of the process, and so on;

- “norm” or “pathology” of human behavior in any relations corresponds or doesn’t correspond to actions and interests-motives, determined as culture (or lack of culture) and personal balance (disbalance) — in ideological component of institutional matrix it manifests itself in the balance I and We.

Numerous problems, the main of which cultivating ideas of national and economic separatism can be listed, stipulated in Russia the absence of proper and systematic transition to innovation way of development. Russia is considered to be a country that uses diffusion (borrowing) of technologies, along with such states as China, Brazil, South Korea and others. However, the mentioned countries already came across the situation, when diffusion exhausted its potential and was replaced

by realizing the necessity to develop national scientific potential. As a counterbalance to the situation, when in the triad of basic institutions the most important role is given to economy, it’s necessary for Russia, accounting worldwide trends, to formulate theses of stationary economy paradigm, based on co-evolution of economy and ecology, when the parity of economic and ecological interests of man and nature is achieved.

## 2. Methods

If under innovation activity a kind of technological, marketing and organizational work, accompanied by transforming ideas into technologically new or improved goods and services is considered, then it is possible to ascertain that the main stages of such activity will be:

- creating new ideas and innovations in points of growth;

- preparing innovations for mass production under simultaneous forming investment attractiveness of new production for business and potential demand on the part of the mass consumer;

- introducing innovations in mass production according to the results of marketing analysis, pricing policy, evaluating the profitability of planning production;

- realization of innovation products on the market of the ready-made goods and services under the formed demand and creation of all the conditions for successful growth of a new product.

Each stage is characterized by inherent parameters, as well as an influence by factors of nano- and micro-levels, on the state of which possibility and success of their fulfillment depend directly. At the present moment of human civilization’s development (it can be seen from the content of each stage) only the state has got a possibility of managing innovation activity as a process, systematically, consequently and productively, creating conditions and forming the environment in which such activity will be conducted.

The state mechanism of management, including management of investment and innovation activity, declaratively can be expressed by triad “concept-strategy-program”, succession, levels of elaboration and implementation of each component are determined at regulatory level and answer the purposes and goals of the territory’s development (evolution). A more applied and attached to local problems and requirements element in the triad such programs come out, which should contain measures and instruments of corresponding state policy. It is accepted to evaluate the result of the state management according to

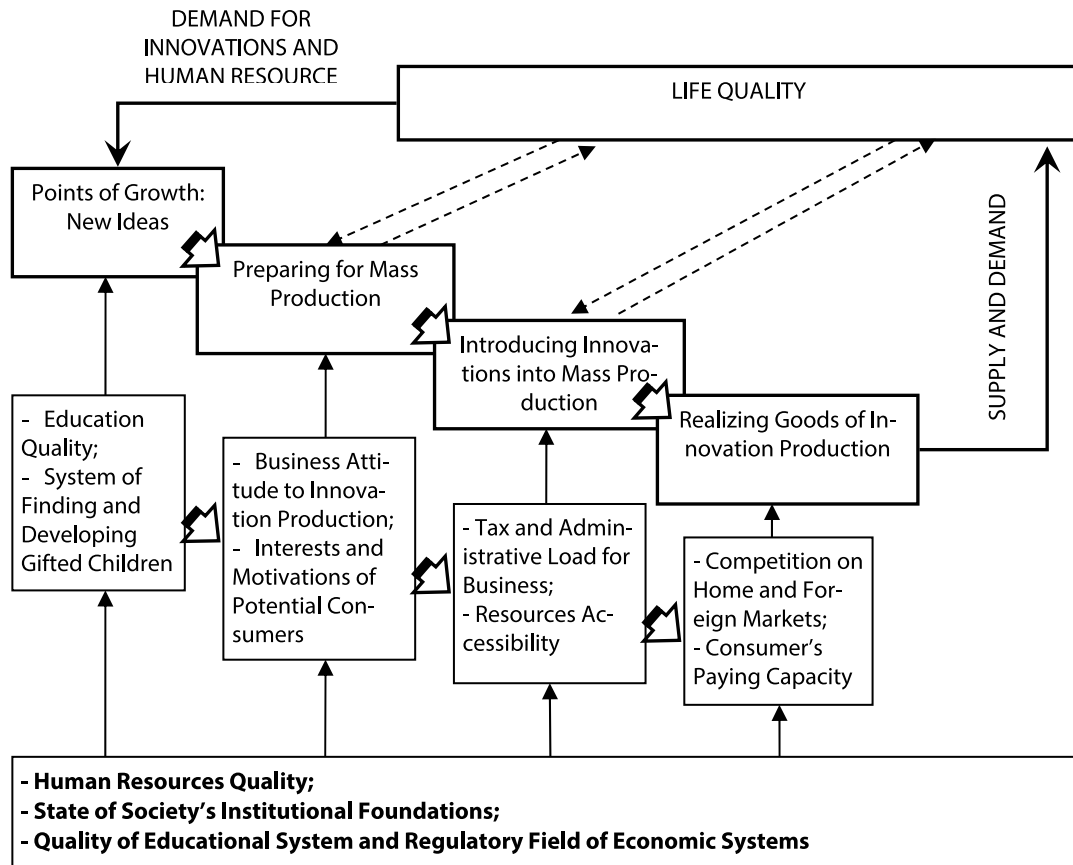


Fig. 1. Process of Regulating Innovation Activity

the key national indices, reflecting the rate and quality of the mentioned triad's realization:

- social and economic effects (quantitative parameters, for example, the rate of growth) — results of growth;
- cumulative effects of social and economic development of the RF (qualitative indices) — results of development.

However, it is possible to speak about the results and effects of management in terms of sub-systems, touched upon in the issue of such influence:

- social result as an index of improving quality and safety of the population's life;
- ecological result as an index of environment conservation and protection from technological influence;
- economic result as an index of the consumers' demands balance, accounting ecological norms.

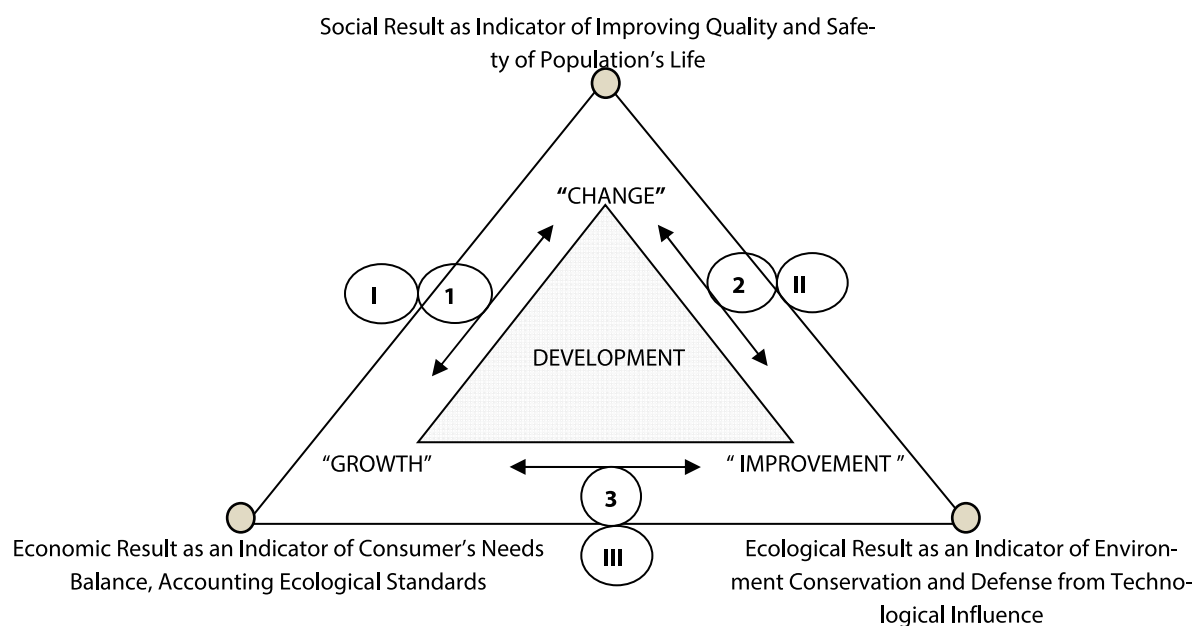
Thus, the state mechanism of managing innovations is formed by the vector determining a trajectory of innovation development in terms of "growth", "change" and "improvement" (Fig. 2). But the way of development is always determined by "initial" point. Obviously, one and the same program of state management of innovation ac-

tivity will give different results for different territories [9, pp.207-208].

As an instrument that helps to determine efficacy, productiveness, and efficiency of innovation development programs, institutional matrices can be used. The institutional system of each concrete society forms an original institutional matrix that determines a fan of possible trajectories of its further development. Institutional matrices — stable, historically formed systems of basic institutions, regulating interconnected functioning of the main social sub-systems — economic, political and ideological. Institutional matrix structure according to neo-institutionalism theses consists of:

- basic institutions, determining the type of matrix — economy, policy, and ideology;
- complimentary (additional) institutions that without forming institutional matrix significantly influence the institutional environment, providing or not providing its stability.

Depending on basic economic (redistributive or market economy) two main types of institutional matrices are regarded: X-matrix (Eastern) Y-matrix (Western). As basic economic institutions in many respects determine the type of matrix (X or Y) and influence political and ideological institutions, under conducting any social and



1 – Structural Changes for Providing Technological Progress;

I – Increase in Consumer Goods Quality and Wellbeing, Increase in Economic Subject's Profit;

2 – Elaborating State Policy on Making Structural Changes Aimed at Improvement of Environment Quality and Population's Wellbeing;

II – Changing Price Orientations, Propaganda of Rational Consumption;

3 – Composition of Public Wealth and Conditions of their Creation/ Consumption;

III – Regulating Ecological Standards of Resources Consumption, Growth of Investment in Nature Capital

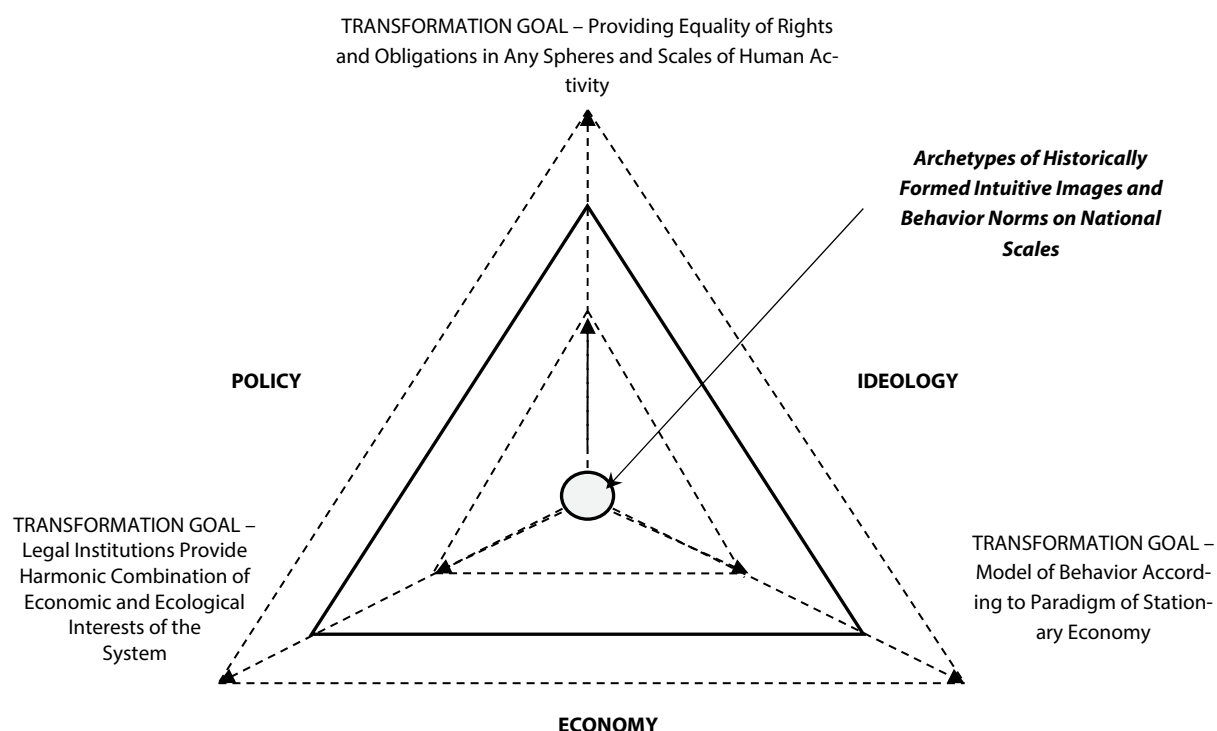
**Fig. 2.** Vectors of Innovation Development Trajectories

economic reforms, their transformation should be given a decisive role.

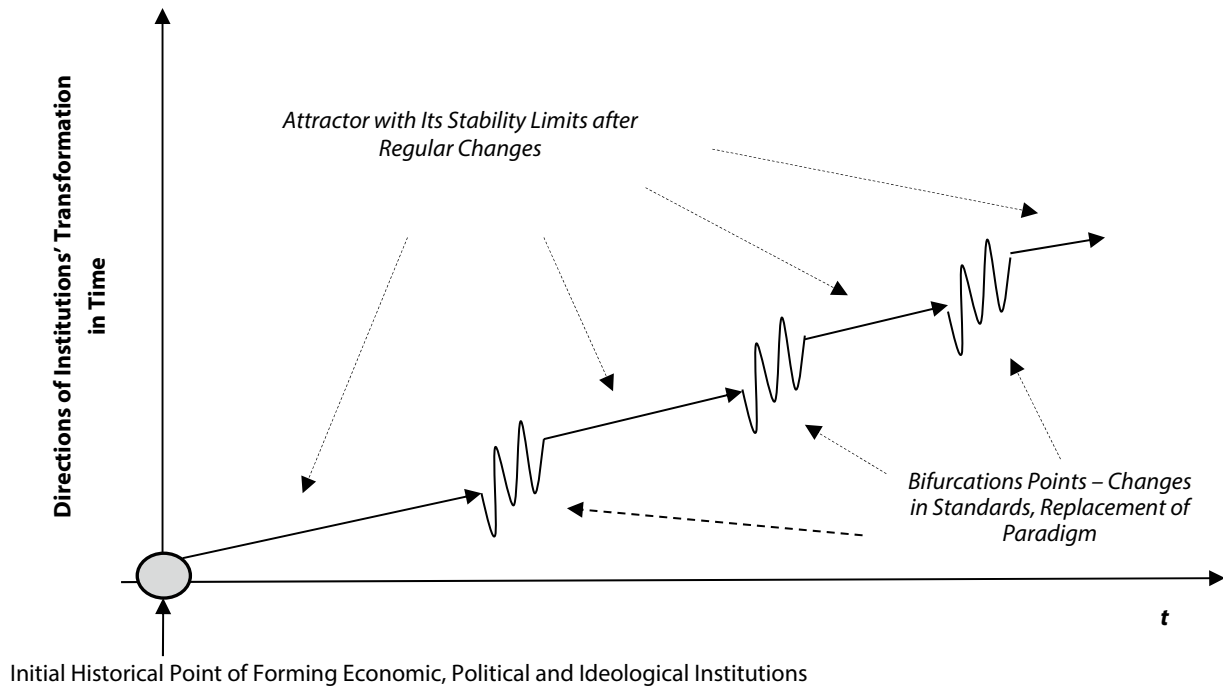
In Fig. 3 a model of historical transformation of political, economic and ideological components of the country's institutional matrix, under which a

complex of institutions should be meant, formed not in the result of purposive activity, but naturally, providing the survival of a large group of people.

Though matrix is interpreted as "original cause" (according to Latin "matrix"), D. North



**Fig. 3.** Direction and Goals of Transforming National Institutional Matrix Components



**Fig. 4.** Order of Transforming in Time Institutional Matrix According to Self-Organization Theory by I. Prigozhin

writes that it should transform in order to react in good time to changes in external and internal environment, where “archetype” norms are both formed and applied [10, 11].

The question of priority and the specific role of economic institutions in forming institutional environment, in our opinion, is disputable: in different historical epochs any of sub-systems can play a decisive and dominating role. The role of forming a matrix of other additional institutions can be mediated and quite noticeable through any sub-system from the three main ones.

For Russia following the development trajectory in the context of the present national institutional matrix means a loss of the existing competitive advantages in economic and political relations, as well as coming to the point of no return in ideological component of institutional matrix (such a conclusion is based on the works on neo-institutionalism by K. Polanjy [12], Nobel’s prize-winner D. North, as well as on the researchers of S.G. Kirdina, O.E. Bessonova [13], N.A. Asaul and other Russian representatives of institutional matrices theory).

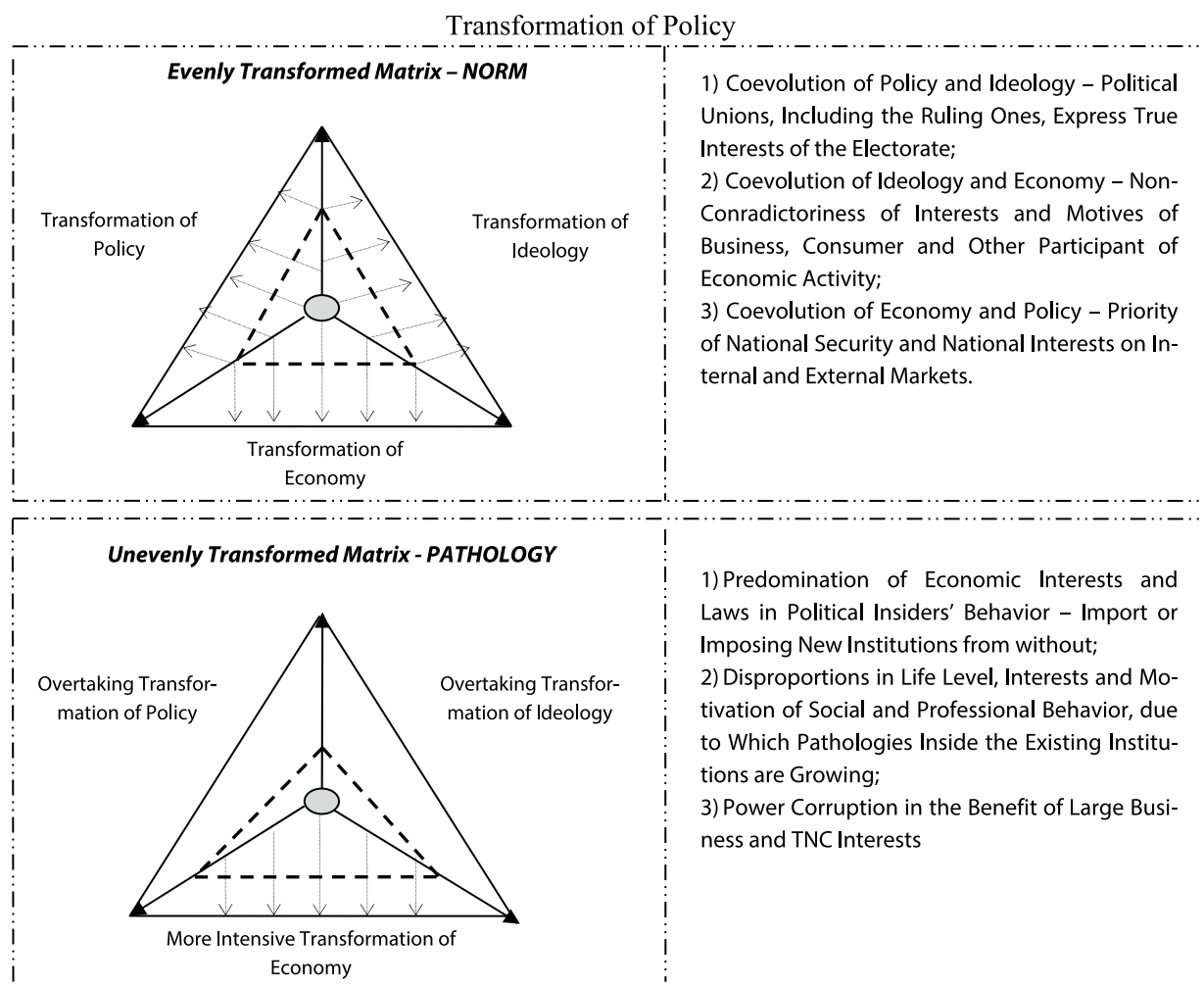
Let’s suggest that the trajectory of transforming matrix institutions according to self-organization theory by I. Prigozhin (Nobel’s prize-winner in chemistry of 1977) will be similar to the changes of attractors and bifurcation points, which is explicable and justified both by the nature itself and the laws of biological evolution. Without such “jumps” transformation of norms, institutions of power, society, and business within the repre-

sented institutional matrix model is impossible and nowise connected with development trajectory of the society itself. If we transform the matrix from three-dimensional measurement into two-dimensional one, transformation trajectory can have the following form (Fig. 4).

Transition from one stable state, norm and institution in economic, political and ideological relations in the society to another (in form of attractors), as well as from one point of bifurcation to another, is represented by replacing each other direct (laminary) and chaotic (turbulent) segments, influencing “life cycle” trajectory of any state and any territory. Period of stable and efficient functioning of institutions is reducing due to natural acceleration of SREDW and technical progress, and on the whole, standards, institutions, and human awareness should be in time with their rate of growth, as well as be optimally corrected [14, pp.20-22].

Thus, if in one of the three components of institutional matrix bifurcation (transition) period drags on, it distorts the matrix’ form itself and decreases efficiency of those institutions, norms and rules it consists of (Fig. 5).

It should be taken into account that in neo-institutionalism not only the institutions that form the institutional matrix are compared, but the archetypes laid into the motivations of the men as well – “unconscious”, intuitive behavior (K.G. Ung). Thus, a possibility appears to influence at nano-level the correlation of the institutional matrix’s institutions through transforming the men’s



**Fig. 5. Transformation of Institutional Matrix: Even and Uneven Variants**

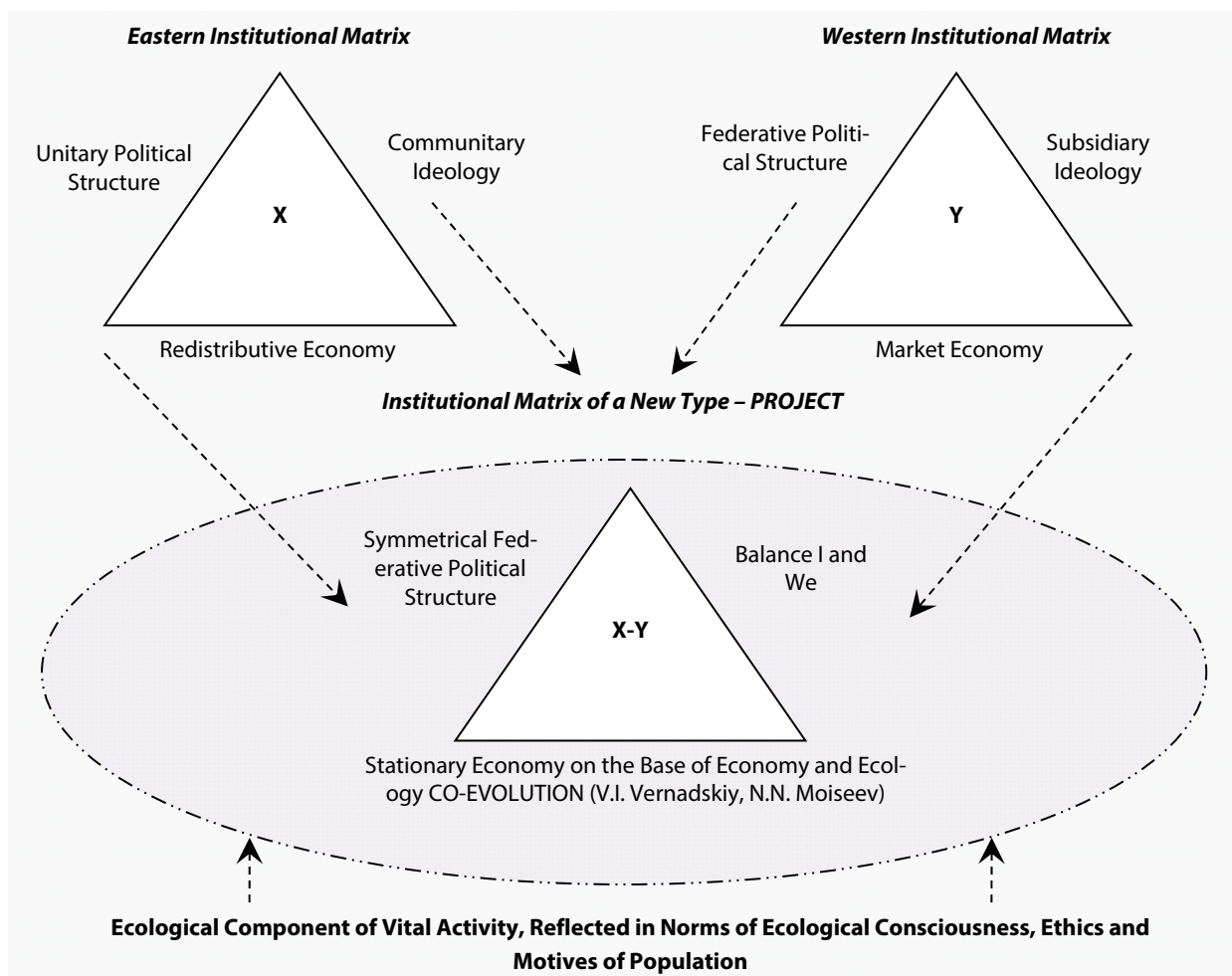
interests in the triad "interests-motives-behaviour" with the help of appealing, first of all, to naturally formed and laid in the men's motivations – respect to the nature, understanding the necessity of preserving the environment of existence. It makes it possible to activate the role of additional ecological institutions, so much the more, ecological laws are more primary and diverse than any other laws used by the men in the vital activity. As the result – a possibility to form for Russia, from the two kinds of matrices – Western and Eastern, – represented in the institutional matrices theory of X–Y institutional matrix of a new type, providing the stated transformation (see Fig. 6).

The pointed variant of the transformation being managed on the part of the state will make it possible to achieve strategic goals of Russian society's development, including innovation development of Russian economy, and take into account the worldwide and national trends (transition from the norms of transitional market economy to stationary economy's paradigm, overcoming ecological crisis, against the background of rational nature management – developing energy con-

serving and new technologies in utilization of renewable energy and others).

Determining norms of the second basic institution of Russian matrix – political one – it is necessary to correct the state structure, form the fundament for transition from national-territory federation, in the base of which both territorial and national principles of subjects' formation are laid simultaneously, to symmetrical federation, where the subjects have equal volume of powers and rights within the limits of federation. Any national accent in the territorial structure is fraught with threats to the integrity and national security of the country. Under correct educational and national state policy a gradual refusal from the territory-national federative structure is necessary – a guarantee of successful, protracted in the historical perspective of the existence of Russia as an integrated state in the marked borders.

In the description of the third basic institution – ideology, to our mind, it is necessary to provide the parity We and I, without this condition transformations aren't possible either in economic or political matrices. It can be explained by the fact



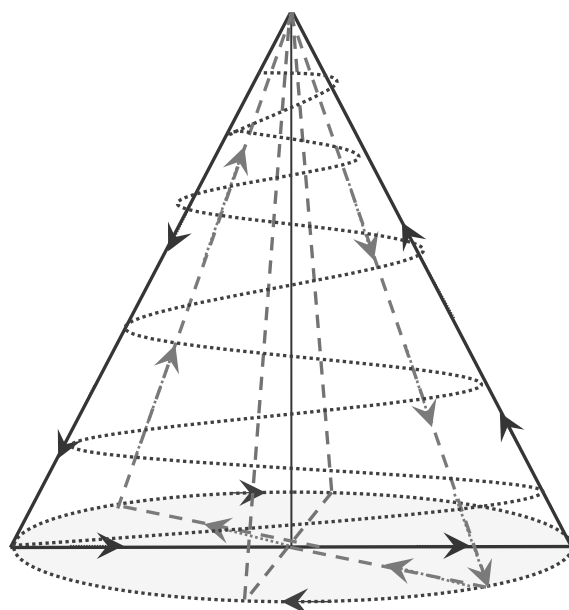
**Fig. 6.** Transformation of Institutional X and Y Matrices into Institutional Matrix of a New Type on the Base of Stationary Economy's Paradigm

that just at the level of ideology it is possible to form the necessary meta-ideas (as a counterbalance to meta-pathologies) — the dominant principles of ideology of both society (We), and individual (I), being a bearer of motivations, norms, behavior rules and development of institutions in economic and political relations. Russia — it is rightly noticed long ago — exists on the intersections of the world cultures and civilizations, absorbing and accumulating the features of “I” and “We” ideology. It is suggested that just the struggle between I and We finally leads to chaos (trajectory fan) as eternal searching in Personal and Social. Just in the unity and the contrast of We and I, the dual nature of human consciousness and the order of interests' forming manifests itself, that should be taken into account elaborating programs of development of these or those spheres of vital activity, and it allows to make ideological institutions productive and foreground in the system of the state strategic management of a territory.

Along with it, the fact should be accounted that ideological institutions, to the maximum ex-

tent, comparing with other ones, are subject to the threat of importing institutions into national matrix through influencing human unconsciousness to the detriment of national interests of this or that country (that already can be observed at present in war elaborations of a number of states) However, there is a way out — to make, on the base of systems approach and at over-national level, the perception of eco-natural substance of human being priority, prolonging transformation spiral from ideological component of institutional matrix to economic and political ones, that will undoubtedly lead to correcting the norms (legislation) and achieving the parity of economic and political goals of the states' development. To achieve that goal, it is necessary to begin forming eco-thinking already at present, as an important condition and a consequence of providing efficiency of implementing ecological literacy program that should account in its mechanism intellectual (through accumulated knowledge and educational system) and intuitive (on the base of archetypes) principles of human behavior.





- **Movement in Time** - in Circle According to Spiral Trajectory;

- **Movement among Institutions** – along Triangle Sides - in Different Directions, Depending on Priority Role of Economic, Political or Ideological Institutions of Matrix.

**Fig. 7.** Example of System's Movement in Form of Institutional Matrix in Time among Institutions of Matrix

Basing on the institutional matrix, in the process of management and realizing programs, including ecological literacy, it is necessary to investigate and account:

1) The trajectory of the matrix and its elements movement – through social and economic development and methods of management of the process. With this aim, let's show two main formats of the matrix' transformation-movement (Fig. 7):

– in time – movement in circle and, perhaps, on spiral trajectory, because depending on the needs of the society or an individual, speed of transforming the existing institutions, or forming the new ones, or importing other ones from without can be different;

– among institutions – economic, political and ideological – movement is universal in both

directions, which bear witness to continuity and close interconnection of any corrections or import of all these norms among themselves;

2) Ecological and economic security as an important condition for proper transformation of the existing institutions, or forming the new ones through the triad "risks-threats-dangers" and its connection at macro- and micro-levels with the triad "concept-strategy-program" and at nano-level with the triad "interests-motivations-behaviour". All these levels are touched upon and interact with the triad "potential-resources-result" (Table 1);

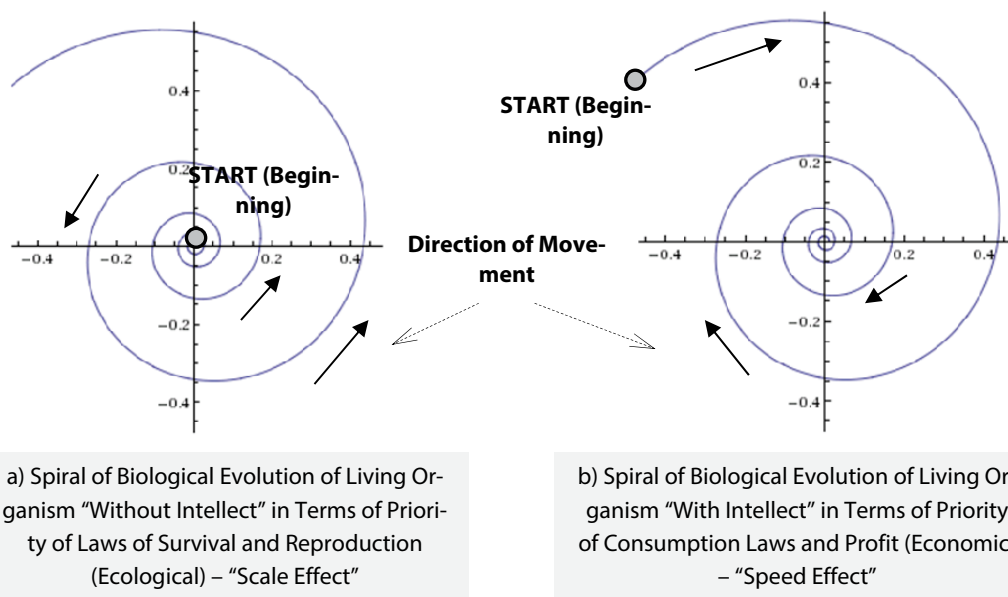
3) Principles of structuring the system – in the proportions of the "Golden Section", according to which an evolution turn in nature takes place on the spiral. It is important here to com-

Table 1

**Triads of State Strategic Management of Society on Levels and Subjects of Ecological and Economic Security System**

Levels and Subjects of Ecological and Economic Security System	Fundamental Principal of Making Decisions	Set of Impulses, Planed Actions, and Resources, Appropriate to Development Goal	Forms of Realizing Desirable Results and Expectable Losses
At Men's Level — Nano-level Subjective Level is Open to Influence and Manipulating	Interests	Motivations	Behavior
At State and Regional Level — Macro- and Mezo- Level Common Level of Management for Achieving Parity of Different Interests under Existing Risks	Concept	Strategy	Program
At Level of Environment and Results of Human Activity — from Nano- to Macro- Level Objective Level of Management — It is Necessary to Account, Realize, and Forecast	Potential	Resources	Result
At Society's Vital Activity Level — from Nano- to Macro- Level Objective Level of Management — It is Necessary to Account, Minimize, and Forecast	Risks	Threats	Dangers





**Fig. 8.** Model of Spiral Biological Evolution in Proportions of the «Gold Section» for Living Organisms without Intellect (a) and with Intellect (b)

pare an evolution turn of living beings with human intellect and without it. Trajectory of spiral development of an organism without human intellect is introduced by a mollusk shell (the most typical examples are also sunflowers' hats, cyclones' and galaxies' spirals), which by form is close to logarithm spiral, and for which historical start of existence is the central spiral point, and proportions of "shell's" growth correspond to the rule of the "Golden Section" 1 to 1,618 (Fig. 8a).

According to scale-invariant approach this evolution trajectory is typical for nano-level and macro- and micro-level (Galaxy spiral), however, the beginning and direction of movement, in our opinion, will be contrary in cases when we speak about trajectory of living organisms' development with and without intellect. In nano- and micro-scales organisms with different principles of evolution can exist and develop simultaneously, the same can be said about the separate states. They are different in directions of evolution spiral and its terms, but similar in the proportion of changes, spiral's moving according to the rule of the "Golden Section". As soon as economic laws, leading to increase of life quality and responsibility for future generations "win a victory", evolution spiral changes its trajectory from widening ("scale effect") to decreasing ("speed effect"), and vice versa (Fig. 8 a and b). This conclusion can be used in management.

### 3. Results

Summing up the above-said, it is necessary to stress the following:

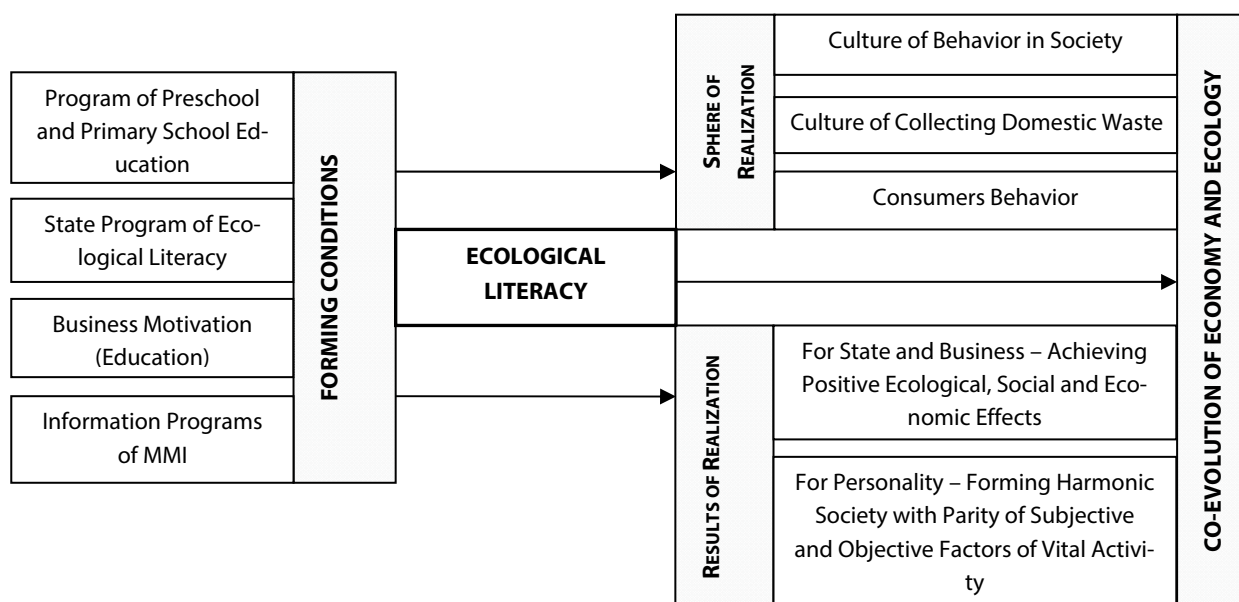
— laws of nature are more primary and natural, than economic and other ones, established by the mankind in the process of civilizational development;

— priority of laws of nature gives "scale effect", expressed by proportional growth of population, cities and other subjects and objects of the system, and the priority of economic laws gives "speed effect", that leads to increasing rates of scientific and technical progress growth, production and technology renovation, as a result of which, according to civilization theory, that renovation in a distant perspective will take seconds, and according to the self-organization theory, accelerate transition of our civilization from one attractor to another through cascade of bifurcations.

Both situations — models (Fig. 8 a and b) lead to disbalance, manifesting themselves in breaching the parity of interests of all the elements of the system. It results in negative and even pathologic consequences. As an example, the countries of the third world with the highest birth rate and low living standard can be taken on the one hand, and on the other — the developed states of the West, with low birth rate and distorted moral values, leading them away from natural for a man psychology of existence.

A question arises — how to provide flattering trajectory of evolution of human civilization, which would be based on co-evolution of ecology and economy, providing the parity of states, interests and structural and temporal proportions:

1) The triad "life quality — ecological and economic security — social and economic development" demands accounting in the state system of



**Fig. 9.** Conditions and Characteristics of Realization of Ecological Literacy Program in Russia

strategic management public and individual, political, ideological and economic priorities that would be in harmony with each other and don't contradict the paradigm of stationary economy. The above-said can be expressed by the motto "priorities through parities";

2) The parity of interests manifests itself in scale-invariant approach according to similarity principle at any level, however, at nano-level – level of an individual – it is necessary to provide systems and scientific approach to propagating eco-oriented valuables, stimulating economic, political and socio-civil behavior, which doesn't contradict principles of ecological and economic security, both of the state and an individual and doesn't make consumption model the corner-stone at any price;

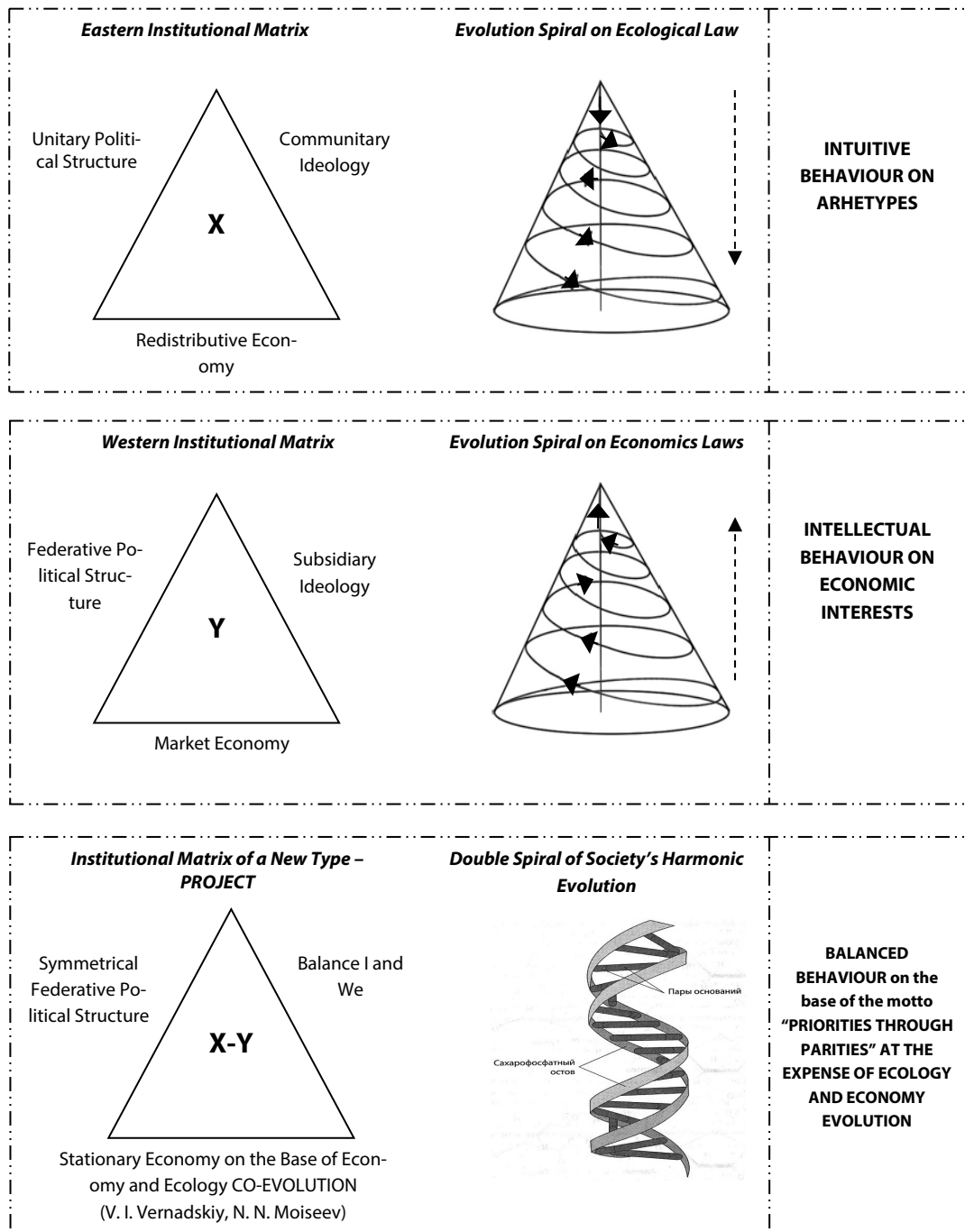
3) Subjective factors, to which we refer ecological consciousness and inclination to innovating, are accessible to management, impulse and motivation, according to the built pyramid of factors of ecological and economic developing territories by the principle of building a pyramid formulated by A. Maslow [4; 5]. If we regard the state programs being elaborated as a set of concrete measures and tools of an appropriate state policy, then we consider that for successful realizing Principles of the State Policy in the Field of Ecological Development of the RF for the period up to 2030 (confirmed by the RF Government's decree of the 18-th of December, 2012, N2423-p) it is necessary to put into life the program of ecological literacy, responsible for achieving positive, ecological, social, economic and political effects (Fig. 9).

If the final goal of both ecological literacy program and transformation is synergetic effect caused by co-evolution of economy and ecology, that manifests itself in stabilizing trajectory of spiral evolution of human civilization (through a symbol of the survival code, corresponding to the life code – double spiral DNA) and optimizing life quality growth (through the motto "priorities through parities") (see Fig. 10).

#### 4. Discussion

Who is responsible for making decisions and implementing necessary measures oriented to successful overcoming crisis phenomena in Russian economy and growth of its competitiveness on home and foreign markets? According to the tetrad by G.B. Kleiner [15, pp. 4-5], consisted of four kinds – environment system (society-man), object system (state, state service), process system (economy and a separately chosen specialist in this or that kind of economic activity) and project system (business and a separately chosen investor with his motivations and priorities of investment activity), and achieving optimal interaction among them is the main goal of development of territory (state, region, city) as a system, eager to get free from the dragged on "bifurcation cascade" (see Fig. 11).

In the represented graph we can see that interconnection of sub-systems and their representatives at macro-level – state and society on the one hand, and economy and business – on the other, is determined by the directions and peculiarities of their interaction and co-subordination, and above all, goal setting of their activity, as well as possibili-



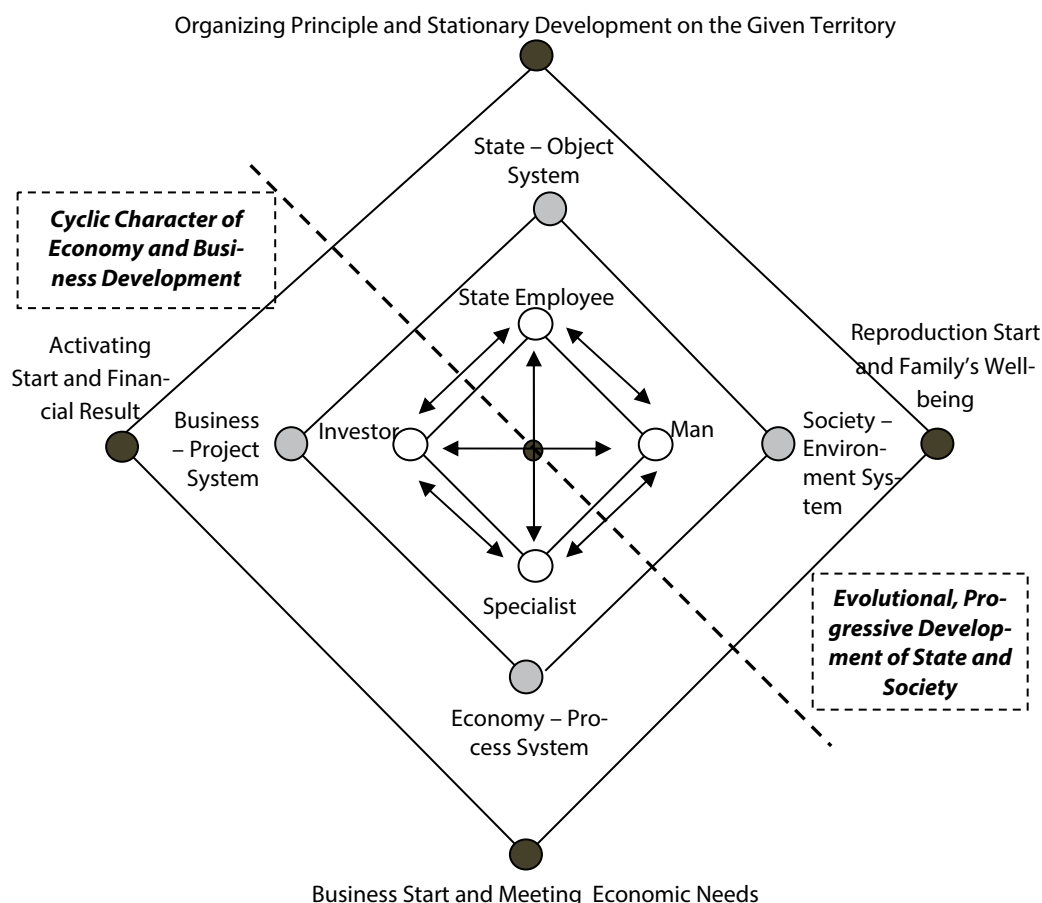
**Fig. 10.** Institutional Matrix of a New Type as Result of Synthesis of Institutional Matrices, Ecological Spirals, and Onto-Psychology

ties of achieving the stated goals of strategic development. And if the final goal of business of any kind and scale is to receive maximum profit and ignore social component for providing increase of the society's wellbeing, with a provision that it is a responsibility of the state, then a contrary question arises: what should the state be guided by, creating favorable conditions for business, if the main taxation task is maximum budget income?

Obviously, the character of interrelations among the representatives of different actors of the system shouldn't be perceived so monosyllab-

ically. Nevertheless, the role of business as a strategic element of development of territory (state, region, municipality) is tangible, and it is proved both by the experience of the last 20-25 years, and business potential in providing innovation future of Russian economy.

How to support the outlined trend accounting the worldwide one of transition to new "game rules", when "Washington Consensus" should be replaced by "Economy for a Man" — model, that meets the requirements of social and ecological fair development, distribution and consump-



**Fig. 11.** *Tetrad of Independently Functioning and Self-Developing System* [16, p. 34]

tion? For that national experts propose in the state planning and management to turn to strategy of overtaking development, the goal of which is accelerated progress in production in real sector as the base for priority development of a personality in format of stationary economic development, orienting everybody for fulfilling the following conditions:

- provision of the technological base on the transition from the fifth technological structure to the sixth one (according to Kondratyev's waves and recognizing the cycle of Russian social and economic development);

- contribution of all the interested parts (state, business, social organizations) to active development and realizing human potential of population, oriented to overcoming all the meta-pathologies, formed historically, due to a number of political and economic reasons; and even according to the nation's mentality (disrespect of law, wish to live for today, and so on);

- cultivation of noosphere lifestyle, thoughts, economic activity (according to the doctrine by Vernadskiy), when a man since his birth will identify himself with corresponding age and social group, as well as to behave as a part of nature, which can't consumer and destroy itself.

Just business, in front of which the problem of active development and putting innovative production into the economy, is a locomotive of bringing growth points (places of innovation generating at nano-level) to mass production and consumption.

Acceleration of scientific and technological renewing production against the background of the state support and reducing the price of new technologies can provide both high demand for products of innovation activity, and saving natural non-renewable resources and human environment, and above all — increase of consumption quality and vital activity itself. Let's pay attention to the gradation of levels of making decisions and forming consciousness — from a personality to the social global consciousness of the mankind. It can be explained by the so-called "human factor", when the perception of the fact, that behavior of a man, as well as behavior of various age and social groups of people, can be directed and simulated, allows to speak about the state responsibility for upbringing an adequate personality, appearing as a state employee, a large business owner, a social worker, a scientist or a representative of any other profession. (Fig. 5).

It can be asserted that conditions and necessary stability — political, social and economic —

for successful realizing the role of business within the framework of strategic management didn't form yet, however, through a system of measures on improving education standards and regulatory support of business innovative foundations in Russia, under available resources welfare, it's possible to achieve rather significant results in decreasing any social, economic, ecological and food risks.

## 5. Conclusion

As long as the mankind exists, it attempts to answer the question concerning the original cause of everything that takes place. Along with it, despite the world's versatility, the swarm of points of view, the answer is expected to be definite — without numerous factors and special features, leading up to the answer, on the one hand, and on the other — getting lost in them, as well.

Virtuality of the present life estranges all the living beings from the fundamental principles, and as it was shown in the work, with acceleration, increasing in geometrical progression. The reason of such acceleration is both lack of understanding and unwillingness to understand the obvious fact that laws of nature are primary. Infringing them, the men risk of everything. Even in the present situation risk can be diminished, combining efforts

in wishing to change it. In the article a number of mechanisms on such change, relying on scale-invariant approach to everything that takes place, beginning from nano-level — motivations of human behavior, — and ending by over-national level — realizing the speed and trajectory of spiral biological evolution proceeding. A special attention level of the state management deserves. On the one hand, the instrument in a form of institutional matrices gives the development direction for all the existing institutions, including the priority of their development. On the other hand, just at the state level, according to the authors' idea, "reloading" of all fractal levels (Table 1) in the context of changing paradigm of thinking. It is an element of the state ideological apparatus, manifesting at the same time the basis of ecological enlightening movement. Being in a specific geopolitical position, Russia is forced to absorb all the vectors of human civilization development. Unfortunately, Russia choose those ways that give immediate results, without a thought of consequences. However, just such spatial position and environment dictates the necessity to give birth to a new paradigm of thinking, characterized by the principle-motto: "priorities through parities". Priorities and parities are determined... The choice is for a man and the mankind.

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## TWO DIPUTES OF METHODS, THREE CONSTRUCTIVISMS, AND THREE LIBERALISMS Part II<sup>1</sup>

### 3. The Methodenstreit from the point of view of constructivist history of sciences

According to historians of science the first scientists were Galileo Galilei (1564–1642) and William Gilbert (1544–1603) [1, p. 68]. Both used the actively experimental method, which includes specially organised observation, for example on the basis of a constructed telescope. Galileo was convinced that the universe is a book that is written in the mathematical language, and the symbols of this language are geometrical figures like triangles and circles. Without the help of these symbols “it is impossible to comprehend a single word of it [the book of the universe]; without of which one wanders in vain through a dark labyrinth” [2, p. 75]. He strongly believed in the force of mathematical models which once constructed can be used to understand the reality. This belief had a religious basis: “God has made the world an immutable mathematical system, permitting by the mathematical method an absolute certainty of scientific knowledge” (Ibid., p. 82). Gilbert, who apparently did not share this belief, was the fa-

ther of nonmathematical scientific current (Ibid., p. 163). Another scientist who tremendously contributed to the formation of rules of scientific research was Robert Boyle. Following Gilbert's practice he championed the method of reasoned analysis of sensible facts, confirmed by exact experiment: “Experience is but an assistant to reason, since it doth indeed supply information to the understanding but the understanding still remain the judge and has the power or right to examine and make use of the testimonies that are presented to it” (Ibid., p. 170-171). Boyle was one of the organisers of the Royal Society of London for the Improvement of Natural Knowledge known as the Royal Society of London. It is his vision of scientific research which was institutionalised in the framework of associations of its practitioners, one of the first of which was the above mentioned Royal Society of London.

The Royal Society of London was founded in 1660 by members of one or two either secretive or informal societies already in existence. The origins of the Royal Society lie in an «invisible college» of natural philosophers who began meeting in the mid-1640s to discuss the ideas of Francis Bacon. The motto of the Royal Society, «Nullius in Verba» («Nothing in words») or in other words «Demonstration by facts

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